

# 7 Audio Basics

In this chapter you will get to know the basic structure of Logic Hit Kit's audio track functions.

## 7.1 What You Need to Know

For newcomers to Logic Hit Kit, it is recommended that you get familiar with the MIDI features of the program. After all, the main advantage of working with an integrated MIDI/audio recording system like Logic Hit Kit, is that you can manipulate MIDI and audio recordings in the same way. After you become familiar with operating the MIDI sequences, you will be prepared to intuitively handle most of the steps involved with working with regions in the Arrange window.

In this section, when we speak of recordings, we are referring to audio recordings (not MIDI recordings).

## 7.2 Basic Principles and Terminology

### 7.2.1 Audio File

When you record any kind of audio signal with Logic Hit Kit, this recording is saved on the hard disk as an audio file

Because standard audio file types are used, you can also import already existing audio files into Logic Hit Kit, or edit Logic Hit Kit recordings in other programs.

An audio file usually remains unchanged on the hard disk, even if you choose to edit small excerpts from the file for playback in Logic Hit Kit. This is non destructive, “region based” editing.

As a recording medium the hard disk has an advantage over magnetic tape, because you never have to rewind or fast-forward it. As a result, you are able to move from one area of work on the hard disk to another, almost instantly. You can simultaneously use audio files which are located at different places on the recording medium. Most edits of audio recordings only affect the way in which Logic Hit Kit plays back the files, without actually affecting the stored data on the disk(s)—an actual cut or deletion does not take place. Thus, every edit of any audio recording performed in the Arrange window can be undone at anytime later. This is what is known as non-destructive editing. Programmable CD players operate on a similar principle. If you want to listen to the songs on your CD in the reverse order from the way they appear on the CD, your CD player does not actually change the data on the CD. That would be *destructive*. The program only plays the songs in the reverse order—*non-destructively*.

## 7.2.2 Regions

With non-destructive editing you do not change the audio file itself, but rather the so-called “regions”. By regions, we mean excerpts of the audio file. The audio file itself is unaffected when the regions are defined.

When you record an audio file with Logic Hit Kit, a region is automatically created which encompasses the entire length of the audio file.

Regions can be defined in the Sample editor. They are also created, when you edit recordings in the Arrange window.

As many regions as you like can be defined from each audio file.

## 7.2.3 Anchor

Besides the start and end points of a region, there is one more important feature: the anchor.

The anchor is a fixed point in a region, with which you can mark a certain musical beat or a characteristic noise in a recording. This point serves as a reference point, so regions can be musically arranged, or synchronized within a song.

When positioning a region in the Arrange window, it is always the anchor (and not the beginning of a region) that is aligned with the start position displayed for the region. For example, if you are placing a sound with a long attack, you might wish to move the anchor for that region to the peak of the waveform, so that as you place the region on a beat, the peak lines up, rather than the very beginning of the region.

In the Sample editor, the anchor is shown as a triangle under the waveform. You can change the position of the anchor by moving the triangle. To begin with, the starting point of a region is always set as the anchor point.

The position indicator of a region in the Event list (or when moving in the info line of the Arrange window) always shows the position of the anchor.

## 7.2.4 Audio Track

MIDI sequences are played by means of an instrument, which has been set in the Track list in the Arrange window.

You can play back the regions in the Arrange window in almost the same way. You just choose an audio object as the “track instrument” or create a new audio track with *Track > Create Audio Track*.

## 7.2.5 Audio Object

An audio object represents a single playback track for Logic Hit Kit.

Imagine an audio playback track, also known as a physical track, as being similar to a single track on a multi-track tape recorder.

## 7.2.6 Sample Editor

In the Sample editor you can precisely set the boundaries and the anchor position for each region. Also, you can select areas of the audio files to form new regions, or perform destructive edits of selected portions of regions.

## 7.3 Production

This section will explain the basic steps for making an audio recording in Logic Hit Kit.

### 7.3.1 Starting a Recording

First, connect the sound source (a mixer, CD player, or microphone, for example) to the audio input(s) of your system.

#### Setting a Path

Click-hold on the record button of the Transport window, and select the menu option *Set Audio Record Path...* Click on *Set*, and in the dialogue box that appears, set the name and path for your recording (audio files).

You do not need to repeat this procedure before every recording. Subsequent recordings will be given the same name, with a number appended to the end of the file name.

The record path will be saved in the Preferences, and will still be active at the next program start. It is recommended, however, that you descriptively name each of your audio files. When you start a new song, create a folder on your hard drive for it, and set the path to that folder when working on the song. This will help you manage the many audio files that you will no doubt create, as you work with Logic Hit Kit.

#### Selecting the Audio Track

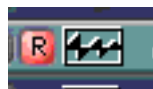
Select an audio track in the Arrange window by clicking on it.

To create a new audio track, select *Track > Create Audio Track* from the menu bar. A new audio track will be inserted in the track list, just below the currently highlighted track.

#### Arming Tracks

Unlike MIDI tracks, audio tracks must be “armed” before they can be recorded to, just as the tracks on a tape recorder must be first armed.

There is a switch marked with an *R*. to the left of the icon for each audio track in the track list. Simply clicking on this *R* prepares the audio object for recording. The *R* button will light red, indicating that the track is armed.



You can also click on the *REC* button on an audio channel in the Track mixer, in order to arm the appropriate audio object.

## Stereo Recording

In order to make a stereo recording, you must configure the selected track as stereo in the Logic Hit Kit mixer. Go to an audio object, and click on the symbol to the left of the record switch. This will toggle the track between stereo and mono. The symbol on the button will indicate the current setting. A simple circle indicates mono, a pair of interlocked circles indicates stereo.



## Levels

As soon as you arm an audio track, you will hear any signal being sent to the audio inputs of your system.

With the audio object's fader on the mixer you can control the level of the monitored signal. The fader always controls the playback level, and not the recording level.

You have to set the recording levels externally, for example on the sub group fader of your mixer, or at the original sound source.



## Starting to Record

Start recording using the record button in the transport window, or by using the appropriate keyboard command [\*].

You will notice during the recording, how the waveform is drawn in real time in the Arrange window.

Keep an eye on the level meter in the audio objects. In the event that the clip indicator (top, red LED) lights up, you will need to record again, using a lower level. So you do not have to watch the level meter constantly; the overload indicator remains lit until you click on it.

Please do not forget to disarm the track(s) after you are done recording. Do this by clicking on the red R button which will then unlight. If you do not first disarm, you will not be able to listen to the audio recorded on this track.

## 7.3.2 Basic Operation

You can work with the recorded regions in the Arrange window almost as you would MIDI-sequences:


- they can be moved around by click-holding and dragging them
- they can be edited with the editing tools
- they can be copied in exactly the same way as MIDI sequences
- delay and loop parameters are available in the sequence parameter box.

By copying a region in the Arrange window normally, you are automatically creating a new region. You can then change the borders of the new region in the Arrange window, without affecting the original region.

### Sample Editor

If you want to edit the regions precisely, it is recommended that you use the Sample editor, which is opened by double-clicking a region in the Arrange window.

Edits in the Sample editor always affect the selected area of the audio file. When you open this editor by double-clicking on a region, the area of the file defined by the selected region is automatically highlighted.

Selections are made by clicking and dragging the mouse. Existing selection parameters can be moved by using -click and dragging.

### Automation of Audio

To automate the volume or pan settings for audio tracks, open the Track Mixer, and put the sequencer into record. As you move the faders or knobs of the audio objects, corresponding MIDI controllers will be recorded to the audio tracks. Upon playback, the MIDI data will be sent back to the faders, thereby automating them.

### Summary

Here is a short summary of operation:

- set the path and name for the audio file. A long click on the record button in the Transport window opens the dialog box.

- Select an audio track in the Arrange window; if one is not already available, create an audio track.
- Arm the track. Click *R* next to the audio object in the track column, or on the *REC* button of the audio object in the Logic Hit Kit mixer.
- Start the recording with RECORD, as with MIDI recordings.

Audio regions are displayed and can be edited non-destructively in the Arrange window. More precise non-destructive edits, and destructive edits are possible in the Sample editor.

## 7.4 In General

### 7.4.1 Tempo and Timeline

Digital audio recordings differ from MIDI sequences in a very important respect. Changing the tempo of your song will not change the rate of playback of an audio recording, as it would a MIDI sequence. If you do change the tempo of the song after recording audio, the starting bar positions of the regions will change, but they will play for exactly the same amount of time as they did when originally recorded. This is because the rate of playback is determined by the sample rate of the audio hardware, not the internal clock in the computer.

For this reason, you should carefully choose the tempo when you start to make an audio recording. A change is not easy to make after the fact.

### 7.4.2 Data Formats

#### Audio files and their Formats

Audio files are saved on the Macintosh in the SDII format (SDII stands for SoundDesigner II, a standard format from Digidesign for digital audio files). For PCs the standard WAV format is used. Both platforms support AIFF files (Audio Interchange File Format).

#### Sample Rate

Audio files which are recorded with Logic Hit Kit use a sample rate of 44.1kHz.

As with all comparable multi-track HD systems, Logic Hit Kit can only play back audio files with a single sampling rate.

## Stereo File Formats

Any of Logic Hit Kit's 16 available tracks may be set to mono or stereo, but there are some things you need to be aware of before you start working with audio files in the stereo format:

- Logic Hit Kit can import stereo files that are made up of two phase locked mono files (split stereo), or files in which both channels of the stereo recording are contained in one file (interleaved stereo).
- In Logic Hit Kit, the stereo files are indicated by two interlocking rings after the region name. You will see the same symbol on the mono/stereo button of a mixer channel.
- Stereo files recorded directly into Logic Hit Kit are automatically written as interleaved stereo files.
- When importing stereo files (regardless of whether split stereo or interleaved), you should make sure that the track object in the mixer that is playing them is also set to stereo. If you play back the stereo file over a mono channel on the mixer, the information from both stereo sides will be summed together, and played back as mono. This can lead to unwanted dropouts or clipping.

